

Togetherall – a clinically managed, online community designed to improve mental health

What were we asked to look at?

SHTG was asked by the Digital Mental Health team within the Scottish Government to consider if there is any added value for individuals and for NHSScotland from access to Togetherall (formerly Big White Wall).

Togetherall is a clinically managed, online community designed to improve mental health. The digital platform provides anonymous, peer-to-peer interactions that give people instant, easy-access to round-the-clock support when they need it. Togetherall is currently available across health and care services in Scotland.

Why is this important?

Mental health and well-being is a major public health challenge in Scotland, with around one in four people experiencing mental ill-health each year. Services struggle to cope with demand, with many people not receiving the support they require. The COVID-19 pandemic has exacerbated mental health pressures across the country.

A digital platform for mental health support offers the potential to reach individuals in greater numbers, and at a population level if desired. Through the convenience and reduction in stigma offered by remote access, a digital platform may also reach people who have not previously engaged with services.

Togetherall is currently provided to populations within Scotland, through local authorities, employers or educational establishments. Prior to wider roll out it is essential to establish the evidence base for the intervention, its safety profile, that it offers value for public money, to ensure that users want and can trust the service, and that the health and care workforce is confident in the platform's ability to deliver good quality care and support. It is also necessary to consider its accessibility and usability for all.

What was our approach?

SHTG's assessment is based upon the domains of value captured in the SHTG Digital Health and Care Technologies Assessment Framework, currently being piloted (Appendix 4).

Togetherall is classed as a tier C technology under the [NICE Evidence standards framework for digital technologies¹](#) (based upon the functionality in the highest applicable evidence tier).

We undertook a literature review of published evidence on Togetherall to address the questions of effectiveness, patient perspectives and organisational issues. We also worked with stakeholders including the developers of Togetherall, patient and public interest groups, and clinical experts in Scotland to assess the additional aspects of value required to fully evaluate a digital intervention. Feedback was sought from the local authorities in Scotland who have adopted Togetherall. Working with the developer, we used the [NHS England Digital Technology Assessment Criteria²](#) as a guide to examine the performance of Togetherall in terms of its clinical safety, data protection compliance, technical security, interoperability, usability and acceptability.

What next?

SHTG's assessment of the evidence will be used by the Digital Mental Health team within the Scottish Government to inform decision making around the provision of an online mental health and well-being support platform, within the context of current available mental health services.

Key findings

- The Scottish Government’s Mental Health Strategy 2017–2027³ aims to improve access to appropriate support and effective care for all, while the Digital Health and Care Strategy⁴ lays out the role of digital technologies in contributing to this aim. These strategies set out a commitment to increase access to evidence-based digital mental health treatments, products and services.
- Togetherall is targeted at a population level, offering psychosocial support, educational and self-care intervention including peer interaction with clinical moderation. Togetherall is a multi-component intervention targeted at providing a broad range of support to a wide spectrum of individuals with mild to moderate mental health and well-being concerns. As such, establishing evidence for its overall effectiveness is challenging.
- The platform has the potential to reduce some aspects of inequalities through offering access in areas that cannot be reached by existing services and providing support for those who may not necessarily be comfortable seeking physical help through existing conventional services. As with any digital health intervention, it may increase inequalities for those with no or limited digital access or capabilities.
- Togetherall can be used as interim support while someone is waiting for a clinic-based service.
- Togetherall is a digital health technology that functions as an intervention, as it is designed to provide guidance and affect behaviour change. The evidence for Togetherall has been considered in relation to tier C of the [NICE Evidence standards framework \(ESF\) for digital technologies](#).¹
- In-keeping with the NICE ESF, two randomised controlled trials (RCTs) were identified, one conducted in Canada and the other in the UK aimed to assess the clinical effectiveness of Togetherall:
 - statistically, but not clinically, significant improvements in mental health recovery were noted in a Canadian population with symptoms severe enough that they had been referred for specialised mental health support, who received immediate access to Togetherall compared with a delayed access control group
 - in the UK study, low adherence meant the study was underpowered to detect a difference, and in a population with mild to moderate symptoms, no statistically or clinically significant differences in self-rated mental

well-being scores were observed for Togetherall compared with an online information only platform.

- There is an existing evidence base to support the mechanisms of action of the components of Togetherall, which demonstrates the application of appropriate behaviour change techniques within the platform.
- No concerns around technical assurance, and data security, protection and privacy were identified using the [NHS England Digital Technology Assessment Criteria²](#) as part of the assessment of Togetherall.
- Togetherall has been assessed in relation to clinical, data and usability standards by ORCHA (Organisation for the Review of Care and Health Applications) and found to be a viable quality assured application, achieving an overall score of 87 %. ORCHA deem 65 % to indicate satisfactory baseline compliance.
- Several published evaluations of implementation and case studies are available to show the relevance of Togetherall to current care pathways in the UK health and care system. These reports provide an indication of uptake and interest among different population groups. Anecdotal evidence from Scottish local authorities on the benefits of Togetherall is available, but no studies or evaluations have been completed.
- Overall usage of the platform was low across all studies. How usage may vary from studies to real world settings is not known and what constitutes appropriate usage is unclear. Promotion of the platform is likely to increase uptake. Usage may also vary according to aspects such as user perceived benefits, initial level of well-being and early experiences of the platform.
- Togetherall and their technical development team work with users to ensure that the platform meets their user or technical needs. Outstanding accessibility concerns are listed on the Togetherall website along with means of addressing these. No specialist knowledge is considered necessary by Togetherall to use the platform.
- Research studies do not specifically cover the safety of the platform, but do not note any increased risks of harms associated with its use. Togetherall has continuous professional moderation in place to monitor user posts and interactions and escalate concerns to their senior clinical team as required.
- No cost-effectiveness analyses of Togetherall were identified. Some limited costing data are available which illustrate potential cost savings when comparing direct costs of Togetherall and traditional therapy or care avoided.
- In summary, the combination of technical assessments (including DTAC and ORCHA) providing verification of quality assurance, and limited evidence from

outcomes effectiveness studies suggests that Togetherall can play a role in supplementing conventional mental health services. Research into the effectiveness of Togetherall is ongoing, including in Scotland, and it will be important to continue to collect evidence to demonstrate the impact of Togetherall on clinical outcomes and patient benefits, and to establish the acceptability of Togetherall with users.

Contents

Introduction	7
Research question.....	7
Methods	7
Literature search.....	8
Background.....	10
Health technology description	11
Epidemiology	12
Effectiveness	14
Systematic reviews and guidelines.....	14
Randomised controlled trials	14
Evaluations.....	18
Case studies.....	20
Ongoing research studies.....	22
Safety.....	23
Cost-effectiveness.....	24
Patient and social aspects	26
Organisational aspects.....	26
Technical assurance.....	27
Data security, protection and privacy.....	28
Interoperability	29
Accessibility and usability.....	29
Environmental and sustainability aspects.....	30
Impact on inequalities.....	30
Discussion and conclusions	31
Identified research gaps	33
Acknowledgements	34
References.....	36
Appendix 1 Research sub-questions	39
Appendix 2 Abbreviations and definitions.....	39
Appendix 3 Local authority feedback on Togetherall	42
Appendix 4 SHTG Digital Health and Care Technologies Assessment Framework (pilot version)	44

Introduction

SHTG was asked by the Digital Mental Health team within the Scottish Government to consider if there is any added value for individuals and for NHSScotland from access to Togetherall (formerly Big White Wall).

Research question

What is the added value for individuals, wider population health in Scotland and for NHSScotland of access to Togetherall (formerly Big White Wall), an online mental health and well-being moderated support platform, as an option for all individuals in Scotland seeking such support, in addition to currently available care?

The overall research question will be addressed by sub-questions which are contained in Appendix 1.

Methods

This work followed the SHTG Assessment process and was based upon consideration of the research question alongside the value domains specified in the draft SHTG Assessment Framework for Digital Technologies (AFDT) (Appendix 4). The research sub-questions were drawn from the generic questions within the AFDT, specifically for this review.

The research questions were addressed primarily by undertaking a systematic review of existing peer reviewed published literature. The ORCHA report on Togetherall was used to inform clinical, data and usability standards questions. The developer of Togetherall was asked to complete the [NHSx Digital Technology Assessment Criteria²](#) to address questions on technical assurance, data security, interoperability and accessibility and usability. Primary research was not undertaken. Consultation with stakeholders on a first draft report was undertaken and feedback from this incorporated into the final version.

Literature search

A systematic search of the literature was carried out between 6 January 2022 and 13 January 2022 to identify systematic reviews and meta-analyses, health technology assessments, primary studies, evaluations and other evidence-based reports. Databases searched were: Medline, Embase, PsycInfo and Web of Science. Results were limited to English language and 2008 onwards.

Key websites were searched for guidelines, policy documents, clinical summaries, economic studies and ongoing trials.

Concepts used in all searches included: *Togetherall, Big White Wall, mental health, well-being, therapy, peer, forum, online, web-based, mobile app, moderated, counsellor*. A full list of resources searched and the search terms used are available on request.

The literature search identified 521 papers, of which 491 were rejected at the title and abstract screening stage. This was because they considered digital mental health interventions other than Togetherall, or were directed towards children or young people rather than adults, or did not constitute research studies or evaluations. The full text of 30 studies was reviewed, and the 10 papers included in this assessment are listed in Table 1. Papers were selected for inclusion if they provided either comparative or non-comparative quantitative or qualitative evidence on the effectiveness and acceptability of Togetherall, or comprised a process evaluation discussing the barriers and facilitators to implementing Togetherall and engaging users.

Table 1: Included studies

Author	Title	Publication date	Study type
Hensel et al ⁶	A web-based Mental Health Platform for Individuals Seeking Specialised Mental Health Care Services: Multicentre Pragmatic Randomised Controlled Trial	2019	RCT and extension of RCT
Hensel et al ⁷	Extending access to a web-based mental health intervention: who wants more, what happens to use over time, and is it helpful? Results of a concealed, randomised controlled extension study		

Morriss et al ⁸	A Direct-to-Public Peer Support Programme (BWW) Versus web-based Information to Aid the Self management of Depression and Anxiety: Results and Challenges of an Automated Randomised Controlled Trial	2021	RCT
Gordon et al ⁹	Developing an explanatory theoretical model for engagement with a web-based mental health platform: results of a mixed methods study	2021	Mixed methods modelling study
Simons et al ¹⁰	East Midlands Academic Health Science Network (EMAHSN) Derbyshire BWW Project Final Evaluation Report, National Institute for Health and Care Research (NIHR) MindTech Healthcare Technology Cooperative	2016	Evaluation
Richie ¹¹	BWW mental well-being service: evaluative review	2009	Evaluation
Gniewosz ¹²	Impact of BWW, an initial savings estimation in direct preventative costs	2011	Costing study
Dosani et al ¹³	Online groups and patient forums	2014	Case study
Togetherall ¹⁴	Togetherall works in partnership with local authorities in Scotland	2021	Case study
Marinova et al ¹⁵	Predictors of Adolescent Engagement and Outcomes – a cross-sectional study using the Togetherall (formerly Big White Wall) digital mental health platform [in press at time of publication of this report]	2022	Cross-sectional study

Background

Mental health and well-being concerns are major public health challenges in Scotland, with around one in four people experiencing some degree of mental ill-health each year.¹⁹ The COVID-19 pandemic has exacerbated mental health pressures across the country. The Scottish Government's Mental Health Strategy 2017–2027³ aims to improve access to appropriate support and effective care for all, while the Digital Health and Care Strategy⁴ lays out the role of digital technologies in contributing to this aim. These strategies make a commitment to increase access to evidence-based digital mental health treatments, products and services. Various digital apps and online platforms that support this aim are currently available to, and accessed by, patients in Scotland, either through open access or referral by their GP or specialist provider. Those offered by the NHS tend to be introduced with assessment and input from NHS board psychology services. Some digital interventions focus on specific indications or populations, some offer therapist guided treatment, others self-help therapy or provide educational resources. Examples provided within the NHS or by third sector organisations include [SilverCloud](#), [Beating the Blues](#), Mind charity's [Side by Side](#) online platform or the eating disorder charity Beat's [online moderated message boards](#). In addition to the clinical and well-being benefits of mental health support, online platforms offer potential benefits to users in terms of reducing stigma through anonymous access and no geographical or time constraints to access. Use of digital interventions relies on users being able to access and operate computer technology.

The COVID-19 pandemic accelerated the move away from solely face-to-face health and care interactions to new methods of reaching service users digitally. For example, there has been a rapid expansion of access to computerised cognitive behavioural therapy (CBT) across Scotland, with self-referral options introduced.¹⁶ The expansion of access to computerised CBT has resulted in the growth in the number of referrals to around 4,000 a month by the end of 2021. Internet enabled CBT was also deployed across all health boards. During the pandemic around 300,000 self-help guides were accessed through NHS Inform. These covered a range of topics including depression, anxiety, eating disorders, phobias and self harm. The Scottish Recovery Network's Meaningful Connections report¹⁷ describes how peer support moved online during the pandemic and notes a desire from service users for a continued provision of such online support as part of a blended care model.

The Scottish Government is currently considering the value of commissioning an online platform such as Togetherall for provision of mental health and well-being support within health and social care in Scotland. This has potential to supplement the care offered to those already cared for in existing mental health pathways by providing access at any time, to provide more immediate support for those on waiting lists, and to also reach individuals who may not otherwise contact mental health services. Using Togetherall may help people in this latter group to determine their need for further support, and may offer an alternative to those for whom face-to-face services would feel challenging.

The impact on users of using the internet as a potential therapeutic platform raises issues that must be taken into consideration. These include data protection, accessibility, safety and impact on inequalities. There are also logistical issues to address such as methods of granting access, subscription patterns and related costs and contracting arrangements, and awareness raising campaigns.

Health technology description

[Togetherall](#) is a subscription-based, multi-component, moderated web-based intervention to provide mental health and well-being support through peer interaction and self-directed modular activities. Togetherall is hosted in a virtual environment that provides anonymity, and immediate access to the service is available to those who register. Information from the developers indicates that nearly half of registrations and 67 % of activity takes place outside traditional working hours.

Togetherall was initially launched as Big White Wall (BWW) in April 2007 in the UK, in response to the lack of safe spaces to talk about mental health online and relaunched as Togetherall in August 2020. The name Togetherall will be used throughout this report for consistency, although its previous name BWW is used in most of the published literature.

Togetherall is available 24 hours a day and monitored throughout this time by “Wall Guides” who are [trained, licensed and regulated](#) multi-disciplinary mental health professionals employed by Togetherall and based in the United Kingdom, Canada, the United States and New Zealand. Wall Guides constantly review user activity and posts to ensure the content is appropriate and sensitive to all users. The content offered by the platform is not intended to treat serious mental illness and is not specific to any mental health diagnosis. It is intended to benefit a wide base of users with various mental health needs, that is, anyone seeking support for their mental well-being. It is aimed at young people and adults aged 16 and above, and can be accessed via any device with an internet connection (for example tablet, desktop computer or smart phone). Togetherall aims to promote independence, and members are not expected to remain with the online community for more than six months.¹³ Although not intended for people in crises, a risk escalation policy and processes are in place to enable the service to respond effectively when someone is in extreme distress.

The following services are available to users:

- digital assessment: online tools to assess common mental health problems and co-morbid physical conditions
- support network: a community of peers (currently the platform has a potential reach of 20 million individuals internationally, and there are around 10,000 active users each month) which enables safe, anonymous support through individual posts, threaded

discussion, private direct messaging and artistic expression. This is considered, by Togetherall, to capture the benefits of the traditional way many would have sought help for their well-being, through peer connection.

- resources: a range of information resources such as self-help articles and self managed and facilitated programmes for individuals and groups. Programmes include anxiety, depression, sleep, smoking and alcohol use. Facility for goal setting and tracking, online journal
- ask a Wall Guide: one-to-one online contact with a mental health professional.

The platform also offers services the ability to host local content directing their users to appropriate local services and resources.

The developers state that Togetherall can improve mental health symptoms through increasing social engagement, normalising experiences, educating and equipping users with skills to manage difficulties. Togetherall is intended to augment and complement existing services.

Togetherall has been commissioned by various clinical commissioning groups in NHS England, local authorities in Scotland and England, employers and universities. For the last 11 years, Togetherall has been commissioned by the Ministry of Defence, NHS England and NHS Improvement as part of an integrated system of mental health care and support to the Armed Forces community across the UK. The service was one of the first five services to be endorsed by NHS Choices and is registered with the Care Quality Commission. Health Canada has made Togetherall access available to all residents in the provinces of Alberta and Nova Scotia. Togetherall provides all their clients with a toolkit of marketing assets and guidance, which supports them in their promotion of the service to their communities. Togetherall also provides reports of usage data as required.

In July 2021, Togetherall was assessed by ORCHA, a company that assesses how digital apps comply with relevant regulation and follow best practice, and achieved a score of 87 % (65 % is deemed by ORCHA to indicate satisfactory baseline compliance). This comprised a data score of 90 %, a professional assurance score of 85 % and a usability/accessibility score of 86 %.

Epidemiology

In a 2016 analysis, mental and substance use disorders were second only to cancer in contributing to Scotland's disease burden as measured by disability adjusted life years.¹⁸ Depression contributed around one third of the mental illness burden, with drug use disorders, anxiety disorders and alcohol dependence also contributing substantial burden.

In the 2019 Scottish Health Survey, 12 % of adults reported two or more depression symptoms and 14 % reported two or more anxiety symptoms.¹⁹ These figures have increased steadily from 2008-9 when the corresponding proportions were 8 % and 9 %. In 2019, 7 % of survey respondents reported that they had attempted suicide and 7 % that they had self harmed. The combined prevalence of depression, anxiety, attempted suicide and self harm was highest amongst those living in the most deprived areas. Fifteen per cent of men and 19 % of women had a score of four or more on the Short General Health Questionnaire (GHQ-12) indicating low well-being or possible psychiatric disorder.

Psychological signs and symptoms was the fifth most common reason for consulting with a GP in 2012-13.²⁰ For the financial year 2018-19 there were 421,440 patients recorded with their GP practice as having depression, a rate of 7.49 per 100 population.²¹

A survey of GPs (n=1,066) across England and Wales conducted by Mind reported that 4 in 10 consultations involved a mental health component.²²

The rate of use of antidepressants has increased in Scotland from 103 daily defined doses (DDDs) per 1,000 population per day in 2009-10 to 174 in 2018-19.²³ The rate of use of hypnotics and anxiolytic medications has reduced from 32 DDDs per 1,000 population per day in 2009-10 to 28 in 2018-19.

The total cost of mental health problems in Scotland in 2009/10 was estimated by the Scottish Association for Mental Health (SAMH) as £10.7 billion per year, including health and social care costs, lost output and human costs (representing impact on quality of life).²⁴ The report estimated that mental health problems at work cost Scottish employers £2.15 billion per year including sickness absence, presenteeism and staff turnover. The report noted that estimated social security spending on people outside the labour market in Scotland, who are in receipt of health-related benefits because of a mental health condition, is around £800 million a year.

A rapid review of the impact of the COVID-19 pandemic on mental health conducted by Public Health Scotland examined studies published up to May 2020.²⁵ Based on a very limited evidence base in terms of quantity, quality and applicability, the authors concluded that the impact of poor mental health in Scotland will increase, particularly among those with pre-existing mental illness, healthcare workers, people who have had exposure to COVID-19 and females.

Surveys of adults (n=10,023) and young people (n=1,756, aged 13 to 24) conducted by the charity Mind in England and Wales between March and May 2021 examined the experiences of people with mental health problems during the pandemic.²⁶ Around two thirds of the participants said their mental health had got worse since the first national lockdown and around half noted that it had got much worse.

Effectiveness

While it is acknowledged that there is an existing evidence base relating to the mechanisms of action of the individual components of Togetherall, such as, for example, online peer interaction,⁵ the current assessment only considered evidence which is specifically about Togetherall and how it delivers these components. The indirect evidence fulfils the initial elements of assessment in indicating a likelihood that the technology could make a difference, but the remit of this work is to try to assess its specific benefit.

Systematic reviews and guidelines

No systematic reviews, guidelines or Health Technology Assessment (HTA) reports specifically assessing Togetherall were identified.

One review²⁷ sought to identify and present the evidence for online support systems in use in higher education, and includes Togetherall. The review aims to be comprehensive, but does not adhere to systematic review methodology and cannot be viewed as systematic. The studies included in the review will be described separately under the appropriate study type heading within this SHTG Assessment.

Randomised controlled trials

Two RCTs examining the clinical effectiveness of Togetherall were identified.^{6, 8} The first,⁶ which had a follow-up extension,⁷ was conducted in Canada, and the second, which was a pilot RCT,⁸ was undertaken in the UK.

Hensel et al (2019)⁶ conducted their pragmatic RCT across several outpatient mental health programmes affiliated with three hospital programmes in Ontario. They sought to determine the utility of Togetherall within their setting, specifically for individuals with mental health symptoms severe enough to warrant a need for specialised mental health care. Individuals were eligible if they were referred or receiving treatment, aged 16 years or older, with access to the internet and an email address, and the ability to navigate a web-based mental health application. Participants (n=812) were randomised 2:1 to receive either immediate access to Togetherall or access after a 3-month delay. There was no restriction during this time on accessing other care. All participants received an email alias that linked to their personal email and a unique prescription for a Togetherall account. A follow-up call was made by the Togetherall study team three days after sending the prescription and again after two weeks, if the account had not been activated.

The primary outcome was the total score on the Recovery Assessment Scale, revised (RAS-r) which measures mental health recovery. It covers five domains: (1) personal confidence and hope, (2) willingness to ask for help, (3) goal and success orientation, (4) reliance on others,

and (5) not dominated by symptoms. This outcome was considered by study authors to be most appropriate for assessing the claim of Togetherall to promote self management and to be applicable across indications. Secondary outcomes were scores on the Patient Health Questionnaire-9 item (PHQ-9), the Generalised Anxiety Disorder Questionnaire-7 item (GAD-7), the EuroQOL 5-dimension quality of life questionnaire (EQ-5D-5L), and the Community Integration Questionnaire. An exploratory analysis examined the association between use of Togetherall and outcomes among those completing the study. Study team members collecting the outcome assessments and those doing the analysis were blinded to group allocation. Both baseline and 3-month post-randomisation surveys were completed via the web-based survey in 95 % of cases, with the remainder by phone or in person.

The immediate access group achieved small, statistically significant increases in adjusted RAS-r score (4.97 points, 95 % CI 2.90 to 7.05), and decreases in PHQ-9 score (-1.83 points, 95 % CI -2.85 to -0.82) and GAD-7 score (-1.55 points, 95 % CI -2.42 to -0.70) compared with those not receiving access within the 3-month period. Follow-up was achieved for 55 % (446/812) at 3 months, 48 % (260/542) of immediate access participants and 69 % of the delayed access participants. Fourteen per cent (76/542) of immediate access participants did not activate their account during the study period and only 58 % (312/542) logged on more than once. Post hoc exploratory analysis indicated that some higher use groups had significantly greater improvements in PHQ-9 and GAD-7 relative to the lowest use group, but no linear relationship was observed between these variables.

The study authors concluded that while improvements were observed for participants who had immediate access to Togetherall, the statistically significant findings are limited by the high, differential drop-out between the groups and overall, and they were below minimal clinically important differences for the outcome measures considered.

Togetherall appears to provide benefit to some individuals with moderately severe mental health symptoms, but due to limited uptake in use, the researchers undertook an extension study to gather information that could help inform implementation and funding decisions.⁷ This study examined which users were interested in extended access to a web-based application beyond an initial 3-month trial period and evaluated if an additional 3 months of access was beneficial. Participants who received access to the intervention in the main trial and completed 3-month outcome assessments were offered participation. Those who were interested in continued access and consented to further participation, were randomised 1:1 to extended access or not.

Of the 233 main trial participants who responded, 119 (51.1 %) indicated an interest in receiving extended access. Those who were interested had significantly higher baseline anxiety symptoms compared to those who were not interested. Of the 119, 112 were rerandomised (55 to extended access, 57 to discontinuation). Only 21 of the 55 extended access participants (38.2 %) used the intervention during the extension period. The median number of logins in the extension group declined from the first 3-month interval (median 7;

interquartile range [IQR] 2 to 22) to the second 3-month interval (median, 0; IQR 0 to 2). The number of logins was the same or higher for only seven participants in the extended group and decreased for all others. Use of all intervention components significantly decreased in the second three months. Change in RAS-r scores over time was not significantly different between groups, but lower numbers meant less power in the study to detect a difference.

The study authors suggest that the low rates of extended access to Togetherall may represent a lack of perceived benefit from this type of intervention among more severely symptomatic individuals. Conversely, users may have benefitted from the first three months of access and no longer perceived a need for the intervention. They note that it may be difficult to predict which individuals may benefit based upon demographic characteristics alone, but they found that anxiety level may be a predictor.

A further study⁹ was undertaken using the qualitative and quantitative findings from both the original trial and its extension to explore and develop a model of what drives engagement with web-based mental health interventions such as Togetherall. The number of logins to the platform was used as proxy for engagement. To assess belief in the intervention and expected benefit, participants were asked to rate their agreement with the statement, 'Self-help tools including online services and books are helpful for people with mental health problems.' Fourteen individuals identified using purposive sampling were interviewed within the first 2 weeks of receiving access to Togetherall, and again a second time within 2 weeks of completing their 12-week experimental period. Quantitative analysis of the data indicated that individuals from general adult psychiatry clinics, females, those out of work, and those with greater levels of anxiety as assessed with the GAD-7 had significantly more logins than their demographic counterparts. Individuals with higher levels of depression as indicated by their PHQ-9 severity category score, had fewer logins than those with minimal depression, but the difference was significant only for the moderately severe depression group.

Qualitative analysis indicated that how people expected to benefit from using the platform was an important indicator of their future usage. Moderate perceived symptoms were linked with higher engagement, and usage depended on positive early experiences with the platform. Reported levels of satisfaction did not necessarily align with levels of usage. Based upon the study findings the researchers constructed a theoretical framework for better understanding the influences on whether and to what extent users engage with web-based platforms like Togetherall. They note that further work is required to refine when and how such influences operate.

A UK trial⁸ of Togetherall took place in Nottinghamshire. It aimed firstly to investigate the reach, feasibility, and acceptability of a public health campaign to recruit individual members of the public with probable mild to moderate depression or anxiety to the trial. The second aim was to look at the feasibility, acceptability, outcomes and baseline costs to society, of conducting a fully automated RCT of two established digital interventions

providing moderated web-based peer interaction and information (Togetherall) versus web-based information only (Moodzone). The researchers noted that previous investigations of similar online platforms had been conducted through mental health services rather than going directly to the public, who may be the actual target audience. The researchers noted that person to person contact may contribute to overall treatment effect, and minimising this contact would reduce bias when trying to identify the specific contribution of the digital intervention.

The public health campaign included working with a marketing agency to establish a 'brand' for the study that would appeal to those suffering from low mood and/or stress. It used a mix of traditional health research recruitment strategies, such as GP endorsement, outpatient clinics, support groups, social media and media advertising, as well as less traditional health advertising, such as on buses and trams and via letter box leafleting. Efforts were made to reach groups regarded as higher risk and harder to reach. Inclusion criteria for participants were: (1) aged ≥ 16 years; (2) reside in the county of Nottinghamshire; (3) scored between 10 and 20 on PHQ-9 or 10 or more on GAD-7, indicating probable depression and anxiety, respectively, but not a definite diagnosis of depression or anxiety disorder; (4) had access to the internet and an email address; and (5) were able and willing to give informed consent. Consenting participants were randomised 1:1 to receive either 6 months of free access to Togetherall or signposted to the information available on NHS Moodzone website.

Once consented, participants were asked to complete self-rated questionnaires to measure well-being, depression, anxiety, work and social adjustment, receipt of services (for economic analysis), social support and personality dysfunction at baseline. Participants were sent reminders to complete self assessments at 3, 6, 12 and 26 weeks after randomisation. The primary outcome measure was change in self-rated well-being from baseline to 6 weeks after baseline using the 14-item Warwick-Edinburgh Mental Well-being Scale (WEMWBS). Analysis was undertaken by a statistician blinded to treatment allocation. Researchers also asked for open-ended survey feedback at baseline and every follow-up and received email and telephone feedback when participants wished to contact the research team. Feedback was analysed thematically.

There were 6,483 log ins to the study website over the 18-month recruitment period from September 2016 to May 2018. Of the 1,510 eligible participants, 790 consented and were randomised, 393 to Moodzone and 397 to Togetherall.

Of the 397 participants randomised to Togetherall, 225 (57.3 %) registered to access the platform and 165 (42.5 %) accessed it on more than one occasion. No participation data are available for the Moodzone website. Of the 790 participants enrolled in the study, 572 (72.4 %) provided complete case data on health care service use at baseline. For the three months prior to baseline, no contact with any health service was reported by 271 (47.4 %) participants, and only 66 (11.5 %) had had contact with mental health services.

At baseline, 93.5 % (739/790) participants completed the WEMWBS, but only 18.4 % (145/790) at 3 weeks, 16.6 % (131/790) at 6 weeks (the primary outcome), 12.3 % (97/790) at 12 weeks, and 8.7 % (69/790) at 26 weeks. There were no statistically significant differences in the mean changes in the primary outcome (WEMWBS) at 6 weeks between the two treatment groups, nor were there any differences at other time points or in the PHQ-9, GAD-7 or Work and Social Adjustment Scale in the imputed or observed results. The low response rate meant that the study lacked power to demonstrate a difference.

Based on feedback received, the researchers identified three aspects contributing to low participation levels. These were, lack of personal interaction with the research team and a perception that the intervention was similarly impersonal, excluding those with self-rated severe depression (based upon ethics considerations) and technical issues. Those recruited were primarily female, white, of working age and without recent contact with mental health services, a group who the authors observe may be considered a target audience for such a direct-to-public digital intervention. This also raises questions about the need for alternative strategies to reach other groups, identifying the importance of effectively informing potential users of a service alongside implementation.

Evaluations

To inform future commissioning of digital mental health services, a partnership comprising East Midlands Academic Health Science Network (EMAHSN), Derbyshire Healthcare NHS Foundation Trust (DHCFT), Talking Mental Health Derbyshire (TMHD) and Togetherall investigated the viability of a digital mental health platform as a means of increasing access to IAPT (Improving Access to Psychological Therapies) services for under-represented groups. The National Institute for Health and Care Research (NIHR) MindTech Healthcare Technology Cooperative was commissioned to undertake an evaluation of the implementation of Togetherall in a pilot implementation project in Derbyshire running between July 2015 and June 2016.¹⁰

The implementation model for this project was for Togetherall to provide the SupportNetwork (moderated online peer interaction network) and the GuidedSupport (guided self-help courses: a range of self managed and facilitated programmes) for individuals and groups for depression and anxiety and related issues such as sleep, smoking and alcohol problems based on CBT and social support principles courses. Togetherall also developed a white label, TMHD-branded internet therapy platform for TMHD clinicians to deliver IAPT services online. Access to the platform ran for 12 months with 500 licences (at the cost of £100 each) available initially. The project was implemented in phases: the SupportNetwork and GuidedSupport started in July 2015, with white label internet therapy starting six months later.

To evaluate the implementation, NIHR researchers undertook the following activities:

- a) analysis of an anonymised dataset provided by Togetherall on members registering and using the SupportNetwork and GuidedSupport courses (socio-demographics and patterns of use)
- b) workshops with commissioners, the company and IAPT provider to establish the value proposition and health economic case for Togetherall (cost-consequences analysis)
- c) interviews with project leads at Togetherall, Hardwick Clinical Commissioning Group, TMHD and DHCFT and participating therapists to understand the implementation processes in this project
- d) analysis of an anonymised dataset provided by DHCFT on patients referred to and accessing TMHD white label internet therapy (socio-demographics, patterns of therapy sessions, outcomes measures), and
- e) questionnaire survey with patients accessing internet therapy exploring patient experience and preferences for online therapy.

There were 707 people in Derbyshire who signed up to Togetherall during the 12-month pilot period. The majority (55 %) found out about the pilot through health, social care and voluntary sector services, with around 19 % finding out about it through public advertising. Researchers noted the evidence of demand from the public to access a service such as Togetherall, and success of a public awareness campaign in reaching its audience. The Togetherall developers reported that 31 % of the people signing up for access stated that they had 'Thoughts of ending their life in the last 6 months.'

Subsequent uptake by those registering was highly variable. Most users showed low engagement with a median time spent on the platform of 32 minutes. A minority of users spent longer, with a median of 108 minutes among the top quartile. Data from the Togetherall website showed that 68 % of logins occurred outside of usual service hours suggesting that people seeking mental health support have been able to access it in a more flexible way and at time when traditional services are unavailable.

Patients assessed as suitable for IAPT Step 3 treatment were offered the option of online therapy and were informed that the wait time for this would be shorter than for face-to-face treatment. Once capacity had been reached and wait times for internet therapy began to build, this option was suspended until capacity again became available.

The evaluators reported that there was little evidence to suggest that provision of Togetherall in Derbyshire, as implemented in this pilot project, increased access to mental health services by under-represented groups. They observed that this was partly a function of the way the pilot was organised, rather than a failure to reach these groups. Much advertising to the public had to be curtailed because of resource constraints. The pilot did demonstrate that IAPT services can be delivered via an online platform, yet given that healthcare professional resources were limited to existing staff, no evidence was gathered

on whether this can increase capacity and efficiency overall. Valuable insights were gathered from therapists involved on what could be done in future to achieve this, and benefits were seen for staff and patients in terms of flexibility and convenience.

An earlier evaluation of Togetherall, carried out in the year after its launch was also identified.¹¹ This was led by the Togetherall team, with oversight from an independent researcher. A survey of all active users (defined as those who had visited the platform at least once since registration and had posted on the site) of the service during the period 1 September and 31 December 2008 was undertaken to provide quantifiable data on impact, while gathering qualitative appraisals of the service. There were 598 active users identified, constituting about one fifth of the total user base over the time period, and 229 (38 %) of those completed the survey.

Survey data indicated that users were predominantly female, and almost half were aged 16 to 24. People accessed the service for a variety of reasons but most commonly due to stress and loneliness. One in four were experiencing suicidal feelings and one in five were self harming. Seventy-three per cent of respondents had never shared the issue they raised with anyone else. The most important factors that enabled respondents to share an issue were freedom of expression and anonymity, each identified by over 80 % of respondents, trust in the community, 58 %, and safety, 54 %. Over three quarters of respondents found Togetherall more helpful than any other source of support in their lives.

While the demographics are likely to reflect the marketing of the service at the time, they do indicate the ability of the service to reach younger people and people who might not otherwise make any contact with health and care services. As noted by the review authors, having a range of participatory opportunities serving the various needs of different users who may prefer support through small groups, public engagement, issue specific self-expression opportunities and discussions, individual engagement or more passive eLearning, appeared to be effective. The authors state that 95 % of active users reported one or more improvements in their mental well-being through using Togetherall, and suggest that the digital environment offers a significant opportunity to develop improved access to mental well-being services.

Case studies

A paper by a group employed by or connected with Togetherall describes a case study of the platform's use in Wandsworth.¹³ The service first became available in 2011 commissioned by the local NHS Clinical Commissioning Group. Between 1 April 2013 and 31 March 2014, 686 people joined the service. More than half were referred by their GP, but others joined via the IAPT services, other health professionals, public health campaigns, social media information and personal recommendation. The group registering for the service contained an over-representation of women, those of white ethnicity, younger adults and the

unemployed, compared with census data for the area. The study authors suggest that may reflect a higher proportion of women accessing IAPT services, English language issues, the epidemiology of anxiety and depression, and potentially bias by referrers for example in making assumptions that younger people are more open to digital interventions. Two testimonies from users are presented in the paper but no details are provided of how these were gathered and no analysis was undertaken.

Several case studies are presented on the [Togetherall website](#), which includes an example of Togetherall working in partnership with local authorities in Scotland. The study provides an overview of the coverage and take-up of the platform in Scotland, although no details are provided about how data was gathered or the time period covered.¹⁴ Several quotes from local authority psychological services are provided indicating the use of Togetherall within a wider portfolio of services. The following data are presented:

- more than 800,000 people in Scotland, including 300,000 students have access to Togetherall via local authorities, universities, colleges, employers and the Armed Forces
- more than 65 % of those who accessed the service did so out-of-hours (after 5pm and before 9am Monday to Friday)
- over 23,000 residents living in Scotland have been actively supported by Togetherall
- 35 % of people who have signed-up to Togetherall in Scotland identify as coming from a Black, Asian or other ethnic minority background
- 70 % of members report improvements with one or more of the issues that had led them to join
- the platform is used to support one third of local authorities/educational psychological services.

SHTG contacted officials at two local authorities in Scotland seeking feedback on their experience of adopting Togetherall. In both cases, Togetherall had been recently introduced meaning that outcomes and user experience had yet to be formally evaluated and the feedback was based on the individual officials' insights into the operation of the platform. The feedback is summarised in Appendix 3.

Part of the consideration of effectiveness of an intervention providing clinical information as part of its function is to ensure that this information is accurate, valid and up to date. No studies were identified which addressed this question. The ORCHA report on Togetherall positively assessed the information within the application as having been validated (by relevant clinical teams), or having been provided alongside reliable sources or references.

Ongoing research studies

A cross-sectional¹⁵ study in adolescents in Scotland examining predictors of engagement and outcomes using Togetherall. Researchers from the University of Edinburgh, in conjunction with Togetherall modelled engagement and outcomes for the Togetherall platform by analysing routinely collected data from 607 users of Togetherall, referred by UK Child and Adolescent Mental Health Services (CAMHS) services between 2016 and 2019. Baseline demographics, depression, anxiety and usage statistics were assessed. Symptom levels among participants who chose to take validated anxiety and depression measures were measured (Generalised Anxiety Disorder Screen (GAD-7) (200 eligible participants)) and/or Depression (Patient Health Questionnaire, PHQ-9 (245 eligible participants)). Participant characteristics were used to predict engagement. Mean baseline symptom scores indicated moderate levels of anxiety (M=14.57, SD=4.58) and depression (M=17.8; SD=5.79).

Analysis showed that participants were aged between 16 and 18, predominantly female and identified as white British. Mean number of logins was 5.11 (SD=8.93), with a mean usage time of 64.22 minutes (SD=123.27). The mean number of logins for adolescent users was higher for older adolescents, and they logged in for a longer duration than younger adolescents. Mean number of logins and usage time was higher in female adolescents than males. For the total sample, 47.9 % of users accessed more than one course, and 27 % accessed at least one self-help resource. Gender and age predicted number of joined courses. Accessing a greater number of self-help materials predicted reduced anxiety and depression symptoms.

The authors note that the findings from this type of study are exploratory but suggest widespread engagement with a digital mental health community in this subset of young people.

No publicly available records of other ongoing research were identified, but the developers of Togetherall notified the following ongoing work (Togetherall developers, personal communication):

Harvard University: Togetherall has partnered with the Mental Health for All Laboratory at Harvard University Medical School to:

- generate qualitative evidence about how online peer-to-peer interaction affects mental health outcomes among members
- explore how professionally registered Togetherall moderators ('Wall Guides') encourage and support members (mechanisms of change), and
- understand how to build skills among moderators and members to expand the reach and benefit of online peer-to-peer interaction.

Qualitative data collection and analysis has been completed but results are not yet publicly available.

Northumbria University (Due 2022): Member journeys before and after Togetherall.

Rutgers University (RCT): Trial involving unemployed residents in New Jersey.

Edinburgh University: A University of Edinburgh Economic and Social Research (ESRC) Impact Accelerator funded qualitative project (Lead Investigator, Angus MacBeth, Clinical Psychology) is using coproduction and stakeholder involvement to explore intersections between i) the user interface design of digital mental health (DMH) platforms; ii) user experience of peer support digital mental health platforms and how this informs platform use; and iii) how mental health and usage can inform a Theory of Change for enhancing DMH platforms. This objective is to develop a toolkit guiding i) how best to integrate user experience into platforms, ii) manage risk, and iii) create evaluation infrastructures within DMH platforms to guide quality assurance, service development and assess impact. Togetherall is being used as a case study of a digital peer-to-peer community platform. The 12-month project started in April 2022.

Safety

Togetherall is fully monitored by trained registered mental health professionals. All of Togetherall's commissioning body contracts include a detailed risk management agreement in which they collaboratively define a range of services, 24/7 crisis contacts and signposting in the event a member is at risk. If there is an imminent risk, Togetherall clinical staff escalate the case to the designated authorities until duty of care is discharged. All clinical activities are fully documented in a Togetherall internal electronic medical record. Based on their data entries, approximately 44 % of members require moderation by the clinical team in some capacity and members are escalated for senior clinical team review or action at a rate of 3-5 per 1,000 active users (Togetherall, personal communication). The senior clinical team can access the registration details submitted by the user and enact the pathways and procedures agreed with the commissioning body through which the user gained access (Togetherall, personal communication). This approach to monitoring users to ensure safety within the service differs from a more traditional approach where people may be assessed to determine the appropriateness of this type of intervention for them before they gain access.

Togetherall has a Clinical Risk Management Plan (CRMP) that defines how their Clinical Safety Management System operates to ensure patient safety with respect to services provided and the interrelated and interactive activities. Togetherall states that this enables

them to meet what they define as the ‘applicable’ requirements of the NHS England Digital standard for clinical risk management.

The Togetherall website lists ‘house rules’ for members advising them on how to use the service in a safe manner for themselves and for others. For example, it advises on maintaining anonymity and how to support others.

Evidence on safety from the published literature

In the RCT conducted by Hensel et al⁶ a data safety monitoring board reviewed data at three and six months after the start of recruitment and did not find any substantial increase in suicidal ideation between groups to warrant investigation or early termination. Over the course of the study, one death was reported to the study team and deemed unrelated to the intervention.

In their paper developing the findings from the earlier RCT, Gordon et al⁹ noted that they did not find evidence that using Togetherall was harmful, though the trial and subsequent study did not have a specific aim related to identifying harm. Gordon et al highlighted a concern around a linear relationship between platform usage and individuals perceiving themselves to have higher levels of anxiety but noted that the implications of this are unclear.

As noted in the paper by Dosani et al,¹³ Togetherall do not allow images of suicidal behaviour or self harm on the Wall, to protect members from triggering thoughts. The authors point out that identifying such images is not an exact science. They state that 24-hour moderation from Wall Guides and removal of membership from those caught trolling helps to reduce the risks of harm to members. If a member posts a message relating to suicidal feelings or urges to self harm, or if a member messages using the ‘Ask a Wall Guide’ function, the member is supported within the anonymous context of the service, and risk is managed according to an agreed service protocol. Members will be brought into a one-to-one text discussion with the Wall Guide on duty, who will assess the risk and, if it is high, advise the member to access health services immediately. The Wall Guide will continue to message the member who is in crisis until they know that they are safe. Comprehensive handover notes and a member flagging system mean that vulnerable members are tracked consistently between shifts.

Cost-effectiveness

No cost-effectiveness studies comparing the relative benefits and costs of Togetherall with any other intervention, or standard care, were identified.

Morriss et al⁸ set out to undertake economic analysis within their RCT, but their analysis was limited by insufficient recruitment and lack of a differential outcome observed between study groups. The trial gathered data on NHS service use and health-related absenteeism using the Client Service Receipt Inventory tool. General data, rather than condition specific data, were gathered as this was felt to better reflect the interlinked nature of mental and physical health. The costs of health-related time taken off work (absenteeism) were estimated using the lost wages approach, noting that this does not attribute any value to health-related presenteeism or those who are unemployed owing to ill-health.

The prevalence of mild to moderate depression and anxiety was derived using the Adult Psychiatric Morbidity Survey by combining the severity of symptoms of common mental disorders, with common mental disorder in the past week using the Clinical Interview Schedule Revised score.

The team extrapolated productivity losses using disease prevalence by gender to control for observed self selection and the number of individuals between 18 and 64 years of age active in employment in the United Kingdom. Estimates of direct-to-NHS costs used a larger population, including those who were inactive in the labour market, and were taken from several data sources listed in the paper.

An economic model was prepared which included variables for gender, WEMWBS, PHQ-9, age, education and employment status, alongside the outcomes of interest. Multiple imputation was inclusive of both trial arms to increase the sample size because neither arm had received treatment at baseline. The 95 % bias-corrected confidence intervals were derived from 1,000-iteration bootstraps, and all health economics analyses were conducted in software Stata SE 16.1.

Results indicated that participants in employment took a mean 10.93 (95 % CI 9.51-12.36) days of health-related time off work during the 3 months, which corresponded to a productivity loss of £1,001.01 (95 % CI 868.75-1133.27), compared with £156.46 (95 % CI 114.08-198.84;) in direct-to-NHS costs per participant. The study authors noted the need to consider costs beyond the NHS in evaluating this intervention.

Simons et al¹⁰ undertook cost-consequence analysis as part of their evaluation of the implementation of Togetherall, but this was focused solely on the value of TMHD white label internet therapy delivery as a comparator to face-to-face within the existing IAPT system. They aimed to produce an improved understanding of the value proposition (perceived benefits) for TMHD white label internet therapy as judged by commissioners and providers, before launch, with a view that this would inform future comparative economic assessments and commissioning decisions. The baseline costs and consequences were derived from the commissioning and provider performance metrics for IAPT. They then sought through stakeholder discussion to discover which of these performance criteria are

likely to be positively affected by the mode of therapy or counselling delivery and which would be influenced elsewhere in the system.

A costing study by Gniesosz¹² attempted to identify potential savings from the use of Togetherall, although this focused entirely on NHS costs. Potential cost savings were not offset against costs relating to the use of Togetherall. Data to inform outcomes were taken from surveys administered by Togetherall to 500 of its users between 1 September 2010 and 31 December 2010. Members were asked about demand for face-to-face or other therapies, accessing out-of-hours care, hospitalisations avoided and improvements in self management. Details of the survey and methods used are not given. Costing data were taken from NHS reference costs and from various published sources listed in the paper. Gniesosz concluded, based upon simple arithmetical calculations, that Togetherall could result in the following annual cost reductions per 100 members: £21,885 in reduction in need for face-to-face or other therapies, £1,479 in reduced accessing of GP out-of-hours/A&E; £12,289 in prevention in hospitalisation (psychiatric); and £1,320 in improved self management; giving an overall per annum saving of £37,000 savings per 100 members.

Togetherall provided crude costing data to SHTG for an example based on a typical contract and usage with a US college (Togetherall, personal communication). They suggested that the cost of salary and benefits for a full-time counsellor is around £76,400 (excluding all expenses tied to operations and overhead). Based on seeing about 125 clients per year, this equates to £611 per client served. With a common utilisation rate of 5 % for an American academic institution, and with a per-head/per year contract, the cost of Togetherall would be £15 per person.

Patient and social aspects

No specific qualitative research studies of users' views, perspectives and experiences of Togetherall were identified, beyond the qualitative aspects of the studies described in the effectiveness section of this report.^{6, 8, 11}

The University of Edinburgh ESRC funded qualitative research project referenced in the Ongoing Research Studies section above is examining stakeholder perspectives of DMH platforms and includes Togetherall as a case study. This will contribute to the understanding of user's perspectives and will be completed towards the end of 2022.

Organisational aspects

Access to Togetherall could be offered at a population level and/or directed towards particular groups or individuals. Whatever model was chosen would influence costs,

surrounding infrastructure, the promotion needed and ongoing awareness raising. Gordon et al⁹ notes that a user-based pricing model may not be appropriate given that substantive usage tends to be concentrated in a small number of individuals; targeting access to those most likely to benefit may be required depending on the pricing model. Decisions would also be required around the provision of live therapy as part of the platform and to how this would be linked to existing local and national provision.

Determining the place of this service around existing provision in general and whether availability would be organised at a national, board or integrated joint board level also needs consideration. Current service provision could potentially be shifted to the Togetherall platform using current staff resources.

No specific information was received from the developers to directly determine what skills, training and digital literacy is required for using and recommending the technology in health and care practice, but Togetherall noted that resources are offered for healthcare professionals to encourage the embedding of the platform into care pathways. Togetherall also provide scripts to advise on which patients may gain the most benefit from Togetherall (Togetherall, personal communication).

Technical assurance

This section was informed by the manufacturer's responses to the respective DTAC technical assurance questions.

Examples of existing deployments of Togetherall across populations in Canadian provinces, that would be of similar size to Scotland, and within local authority areas of Scotland, indicate that appropriate technical infrastructure, programme management, technology expertise and support and clinical input is available from Togetherall to sustain a robust and reliable service at the scale and in the context required.

Quality assurance testing is provided by the Togetherall product team for all changes to the service and bug fixes, and logged onto their project management software to ensure quality. Togetherall's Quality, Safety and Performance Group measures quality Key Performance Indicators (KPIs) for the service and has executive representation from across departments to address this. Product demonstrations are delivered by the product team to the rest of the business demonstrating development of new features to gather feedback from all areas across Togetherall's multi-disciplinary teams.

Service availability Service Level Agreements are not provided for Togetherall, as they state that their service is not an integrated business critical system. Togetherall has a KPI for website uptime of 99.9 % which is reviewed every two months. This has been exceeded for the 12 months up to March 2022.

Togetherall's business continuity plan provides assurance in case of incidents causing interruption of service. Togetherall's hosting provider, Amazon Web Services' (AWS), Availability Zones are designed for physical redundancy and provide resilience, enabling uninterrupted performance even in the event of power outages, internet downtime, floods and other natural disasters. Togetherall test restores from backups to its staging environment at least once per quarter to ensure the minimum downtime in the event of an incident. Togetherall has assessed its hosting provider AWS against the National Cyber Security Centre Cloud Security Principles.

Togetherall state that their business model is scalable and sustainable throughout product iteration, because as a peer-to-peer network it can cope with an increase in demand at short notice. Product development is budgeted for and specifically addresses the needs of service users. Togetherall follows an agile scrum-based board development process, with fortnightly sprints, with all technical development managed through their Jira project management tool.

Data security, protection and privacy

This section was informed by the manufacturer's responses to the respective DTAC data security, protection and privacy questions.

Togetherall is registered with the UK Information Commissioner and has a nominated Data Protection Officer. The Data Protection Officer signs off risk assessments and mitigations, access controls and system level security policies, and reviews the organisation's change management process.

Togetherall has access to personal data of its users and processes these according to its [privacy policy](#) (available on the Togetherall website) which is designed to ensure compliance with GDPR (General Data Protection Regulation) legislation. Togetherall and its customers act as Joint Controllers only when they process shared personal data in the context of the provision of Togetherall Professional Services. This shared personal data includes an identifiable reference number and further notes, which may contain NHS held patient data. Togetherall Professional Services is a tool that allows 'referrers' nominated by the customer to directly refer individuals to the Support Network Service. 'Referrers,' nominated by the customer are provided with an account for the Togetherall Professional Services platform and all input of information takes place within the Togetherall platform.

Togetherall is compliant with the Data Security and Protection Toolkit which allows organisations to measure performance against the National Data Guardian's 10 data security standards²⁸ and has available a Data Protection Impact Assessment for the product.

While all data are stored in London, UK Data centres, data are also processed by Togetherall senior clinical staff who are sometimes located outside of the UK or European Economic Area (Canada, New Zealand, United States). As per the [UK Togetherall Privacy Policy](#), for any user located in the European Economic Area (EEA) or in the UK, Togetherall may transfer personal data outside of the EEA or the UK to: (i) provide 24/7 care in urgent or risk situations; or (ii) seek specialist support and advice from specialist consultants located outside the EEA or the UK, but Togetherall will implement adequate safeguarding controls where this is the case. Togetherall may store locally personal data of users located outside the UK or the EEA.

Togetherall's third party Penetration Testing via intruder.io covers checks for vulnerabilities in all categories of the 2021 Open Web Application Security Process top 10 web application security risks,²⁹ except for 'A9 – Security Logging and Monitoring Failures,' which Togetherall state is not applicable in their case.

Togetherall state that all custom code has had an internal security review, all privileged accounts have appropriate multi-factor authentication and logging and reporting requirements have been clearly defined and that the product has been load tested.

An application for Cyber Essentials certification from the [UK National Cyber Security Centre](#) is currently underway by Togetherall.

Interoperability

This section was informed by the manufacturer's responses to the respective DTAC interoperability questions.

Togetherall reports that its product does not expose any Application Program Interfaces (APIs) nor integration channels for other consumers because it does not require these to deliver its services. It does not have the capacity for read/write operations with electronic health records as this is not required for its operation. This may be an issue for commissioners to consider in future should they be looking for opportunities to deliver integrated systems.

Accessibility and usability

This section was informed by the manufacturer's responses to the respective DTAC accessibility and usability questions.

Togetherall is an internet facing digital service which meets the Internet First technical guidance³⁰ provisions where this applies to the service.

Regarding facilitating access to the platform, Togetherall undertakes user research testing with individuals drawn from an end user pool. The aim of the testing is to ascertain users' needs in relation to the platform's features and functionality. In addition, Togetherall seeks advocacy services and representatives' views through customer surveys. User journeys and design flows are developed and maintained based on users' research perspectives.

Togetherall is compliant with international Web Content Accessibility Guidelines (WCAG) 2.1³¹ level AA (the middle level on a scale from A to AAA). An independent team of accessibility experts audited Togetherall using human testers only. An action plan was developed and implemented to address areas of improvement. Togetherall's [Accessibility statement](#)³² includes 'Limitations of this site's accessibility' section, which addresses the items where Togetherall currently does not meet accessibility standards and why. The statement includes advice on how to contact Togetherall to report accessibility barriers including a link to the [W3C website](#)³³ which includes accessibility guidance for individuals.

Togetherall advises that no specialist health knowledge is required to use the platform with user journeys being based around the principle of accessibility. Togetherall provides assisted digital support accessible for the requirements of each user including through Togetherall customer support channels, FAQs, voicemail and technical test sessions.

User data are collected by Togetherall from several sources including registrations, platform activity and annual surveys. This enables Togetherall to evaluate the reach and impact of the service along with the analysis of Net Promoter Score (NPS) scores. Separately, user needs' research data are used to inform technical roadmaps for product development.

Environmental and sustainability aspects

No specific discussion of this topic was identified in the published literature. As a digital intervention, this technology may result in less travel for treatment and support for both staff and patients. Digital products that reduce travel for both staff and patients should be recognised explicitly by NHS Scotland as contributing to net zero targets.

Impact on inequalities

As with all digital technologies, there is potential for differential access based upon availability of and ability to use the appropriate hardware and software. There may be challenges for those without reasonable computer access and those who are unfamiliar with computer technology. This may be more common in older people and those with limited financial resources. Awareness of the technology and ensuring appropriate marketing is also

important to ensure that population groups are not excluded. Conversely, digital technology may improve access for those for whom physical access is challenging, who do not engage with conventional services and/or fear stigma when reaching out to these.

It is unclear how the evidence relating to the effectiveness of Togetherall is representative of local populations. Future studies should ensure an equitable population mix according to gender, age, race and ethnicity.

Discussion and conclusions

The included RCTs and evaluations all consider different populations (who may not reflect those for whom the intervention is expected to have greatest benefit), in different healthcare settings and in the case of the RCTs, with different comparators. Outcome data available are limited in quantity, given the small number of studies, their diversity and because maintaining engagement of study participants, as observed in some other real world studies of digital technologies,³⁴ proved challenging. From the small number of peer reviewed published studies, there is limited evidence of significant clinical benefit from the use of Togetherall. There is a statistical indication of users experiencing improvements in their mental health and well-being. Indirect evidence is available which can demonstrate how the components of the intervention are effective, but only the overall specific performance of Togetherall in delivering these components was considered here.

The studies demonstrate that users who would not otherwise access services or who may not be able to access services during traditional office hours can be attracted to engage with Togetherall. Data gathered suggest that the user population engagement is influenced by the way and places in which the service is promoted.

Although attracting individuals to sign up for the service, subsequent engagement in the service was low. A small proportion of users made greater use of the service, but it has not yet been possible to characterise this small group of high users. Lack of engagement, and majority use coming from a small proportion of potential users, is something that has been identified in other studies of online systems.^{7, 27} Papadetaou-Pastou et al²⁷ note that factors such as flexibility, ability to track progress, ease of use, ability to access quick solutions, and raised awareness of benefits can encourage greater engagement. Hensel et al⁷ identify more user choice, added interactivity and customisation, as features that can enhance engagement with online platforms. Morriss et al⁸ point out the importance of prior expectation of benefit from using an online service and, again, a full understanding of what is on offer. As well as belief in the service, users' perception of the severity of their condition, and initial experiences were highlighted by Gordon et al⁹ as of importance in determining subsequent usage.

Various reasons for low usage of Togetherall in the studies are considered and ways in which usage could be enhanced discussed. Unlike conventional modes of delivering therapy where regular scheduled face-to-face contact can promote engagement, an element of self motivation is required to use a platform such as Togetherall, and this may be an area in which people with certain mental health conditions struggle.⁹ For others, the online mode of access may encourage access. Another aspect to consider is that for individuals with mild symptoms and concerns, long term use of the platform is not expected or encouraged.

It may be that a platform such as Togetherall with its multi-component offering is more attractive to users than a single component intervention by offering various ways of engaging and at different levels, though this remains speculative in the absence of comparative evidence. What constitutes an 'adequate' or 'appropriate' usage to ensure benefit, particularly for such an intervention, and how to measure this, is also very difficult to specify.⁷

Both the RCTs were undertaken prior to the pandemic, and the evaluations and case studies much earlier. Attitudes towards using online technologies to access healthcare and support are likely to have changed since the evidence presented was gathered and it seems plausible that different levels and patterns of usage may be observed in studies undertaken now. Various ongoing studies of Togetherall were identified, and recent positive anecdotal feedback on the use of the system is available on the Togetherall website.

The focus of most of the studies was on Togetherall as an individual patient intervention, whereas the developers of Togetherall indicate that they view the platform as a population-based approach to improving mental health and well-being. The levels of engagement and usage when the service is promoted at a population level may differ from those observed in trials³⁵ and Togetherall report this to be their experience (Togetherall, personal communication).

Overall, evidence of effectiveness is limited, and further data-gathering is required to demonstrate that Togetherall adds value to population or individual (I think) well-being. The published evidence suggests that, in terms of implementing the platform, careful consideration would need to be given to identifying the appropriate target group for using the platform. Equally important considerations are how the target group or population would be made aware of the service, how best to engage with different equality groups within the wider group and the challenges that may be faced by particular individuals and groups.

Given observed usage patterns, also requiring further investigation would be the most appropriate licensing and access model for provision within NHSScotland. Licensing per usage may be more reflective of benefit than licensing per user. Offering population-wide access, with self selection and professionally directed access in addition, could be considered if the risks were considered minimal, and costs in relation to benefits acceptable.

The information available demonstrates that the developers of Togetherall can provide the technical infrastructure, support and competence to run and sustain a robust service, and are keen to engage in further research and partnership working to optimise the platform for users.

Identified research gaps

There is a need for further controlled studies and evaluations to gather more data against both mental health and well-being outcomes for people who use Togetherall in addition to standard care, versus standard care alone. Ideally comparator studies versus other available services would be conducted. Studies should also assess the groups in which Togetherall may offer most benefit. Alongside the effectiveness studies, costing data should be gathered to enable assessment of the economic effectiveness of Togetherall in addition to standard care compared with standard care. Qualitative studies could explore barriers and facilitators for different groups in engaging with the platform and provide greater understanding of the situations in which it does and does not meet the needs of users. Organisations, such as the Scottish Recovery Network, emphasise the importance of including those with lived experience in the design and planning of mental health services. The James Lind Alliance Priority setting partnership for digital health has identified several areas relating to the applications of technologies such as this one which require further research.³⁶ The technology is already in widespread use across the UK so there may be options to analyse real world data to establish a greater understanding of, for example, predictive factors for benefit or for drop-out. In more traditional peer support environments, the suitability of the individual for the intervention may be assessed prior to their involvement and it would be useful to examine how the approach of granting access to all without prior assessment, but providing moderation and support instead, impacts upon individuals and the community.

Acknowledgements

Healthcare Improvement Scotland development team

- Paul Campbell, Vice Chair, Scottish Health Technologies Council
- Iain Colthart, Author, Health Services Researcher
- Karen Macpherson, Lead Author, Lead Health Services Researcher
- Rory Maguire, Project Officer
- Charis Miller, Health Information Scientist
- James Stewart, Public Involvement Adviser

The following individuals provided peer-review:

- Mrs Emily Bromiley, Head of Business Development UK, Togetherall
- Ms Shaunna Carden, Business Development Manager, Togetherall
- Dr Michael Craven, Principal Research Fellow, NIHR MindTech MedTech Co-operative, University of Nottingham
- Ms Iona Crawford, Mental Health Clinical Effectiveness Lead, Scottish Ambulance Service
- Mrs Stephanie Gilfedder, Senior Nurse Mental Health
- Health and Social Care Alliance Scotland
- Dr Angus MacBeth, Senior Lecturer in Clinical Psychology, University of Edinburgh
- Dr Donald MacIntyre, Honorary Reader, University of Edinburgh
- Dr Ali Mehdi, Surgeon, NHS Borders, SHTG Council Vice-Chair
- Mr. Moses Onah, Health Intelligence Analyst, NHS Tayside
- Miss Noelle O'Neill, Senior Public Health Scientist, NHS Highland.
- Penumbra
- Dr Alison Robertson, Consultant Clinical Psychologist, NHS Western Isles
- Ms Olivia Robertson, H Head of nursing for mental health and learning disabilities services, NHS Fife
- Ms Leonie Stone, Digital Mental Health Policy Manager, Scottish Government

Declarations of interest were received from all peer reviewers. All contributions from peer reviewers were considered by the author. The peer reviewers had no role in authorship or editorial control.

© Healthcare Improvement Scotland 2022

Published July 2022

This document is licensed under the Creative Commons Attribution-Noncommercial-NoDerivatives 4.0 International License. This allows for the copy and redistribution of this document as long as Healthcare Improvement Scotland is fully acknowledged and given credit. The material must not be remixed, transformed or built upon in any way. To view a copy of this license, visit <https://creativecommons.org/licenses/by-nc-nd/4.0/>

References

1. National Institute for Health and Care Excellence. Evidence standards framework (ESF) for digital health technologies. 2021 [cited 20/05/2022]; Available from: <https://www.nice.org.uk/about/what-we-do/our-programmes/evidence-standards-framework-for-digital-health-technologies>
2. NHSx. Digital Technology Assessment Criteria (DTAC). 2021 [cited 20/05/2022]; Available from: <https://www.nhsx.nhs.uk/key-tools-and-info/digital-technology-assessment-criteria-dtac/>.
3. Scottish Government. Mental Health Strategy: 2017-2027. 2017 [cited 16 Feb 2022]; Available from: <https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2017/03/mental-health-strategy-2017-2027/documents/00516047-pdf/00516047-pdf/govscot%3Adocument/00516047.pdf?forceDownload=true>.
4. Scottish Government. Enabling, Connecting and Empowering: Care in the Digital Age. 2021 [cited 16 Feb 2022]; Available from: <https://www.gov.scot/publications/scotlands-digital-health-care-strategy/documents/>.
5. Kingod N, Cleal B, Wahlberg A, Husted GR. Online Peer-to-Peer Communities in the Daily Lives of People With Chronic Illness: A Qualitative Systematic Review. *Qual Health Res.* 2017;27(1):89-99. Epub 2016/12/14.
6. Hensel JM, Shaw J, Ivers NM, Desveaux L, Vigod SN, Cohen A, *et al.* A Web-Based Mental Health Platform for Individuals Seeking Specialized Mental Health Care Services: Multicenter Pragmatic Randomized Controlled Trial. *J Med Internet Res.* 2019;21(6):e10838.
7. Hensel JM, Shaw J, Ivers NM, Desveaux L, Vigod SN, Bouck Z, *et al.* Extending access to a web-based mental health intervention: who wants more, what happens to use over time, and is it helpful? Results of a concealed, randomized controlled extension study. *BMC Psychiatry.* 2019;19(1):39.
8. Morriss R, Kaylor-Hughes C, Rawsthorne M, Coulson N, Simpson S, Guo B, *et al.* A Direct-to-Public Peer Support Program (Big White Wall) Versus Web-Based Information to Aid the Self-management of Depression and Anxiety: Results and Challenges of an Automated Randomized Controlled Trial. *J Med Internet Res.* 2021;23(4):e23487.
9. Gordon D, Hensel J, Bouck Z, Desveaux L, Soobiah C, Saragosa M, *et al.* Developing an explanatory theoretical model for engagement with a web-based mental health platform: results of a mixed methods study. *BMC Psychiatry.* 2021;21(1):417.
10. Simons L, Craven MP, Martin JL. East Midlands Academic Health Science Network (EMAHSN) Derbyshire Big White Wall Project Final Evaluation Report, NIHR MindTech Healthcare Technology Co-operative. 2016 [cited 2021 Dec 23]; Available from: https://www.researchgate.net/publication/331249817_EMAHSN_Derbyshire_Big_White_Wall_Project_Final_Evaluation_Report_October_2016.
11. Ritchie J. Big White Wall mental wellbeing service: evaluative review. 2009 [cited 2021 Dec 23]; Available from: <https://www.mhinnovation.net/sites/default/files/downloads/resource/Big%20White%20Wall%20Evaluative%20Review.pdf>
12. Gniewosz G. Impact of Big White Wall, an initial savings estimation in direct preventative costs. 2011 [cited 2021 Dec 23]; Available from:

<https://www.mhinnovation.net/sites/default/files/downloads/innovation/reports/BWWs-Indicative-Direct-Preventative-Costs-Model.pdf>

13. Dosani S, Harding C, Wilson S. Online groups and patient forums. *Curr Psychiatry Rep.* 2014;16(11):507. Epub 2014/10/03.
14. Togetherall. Togetherall works in partnership with Local Authorities in Scotland. 2021 [cited 2021 Dec 23]; Available from: <https://togetherall.com/en-gb/case-studies/togetherall-works-in-partnership-with-local-authorities-in-scotland/>.
15. Marinova N, Rogers T, MacBeth A. Predictors of Adolescent Engagement and Outcomes – a cross-sectional study using the Togetherall (formerly Big White Wall) digital mental health platform. *Journal of affective disorders.* 2022;311:284-293
16. Digital Health & Care Scotland. Scotland’s Digital Health and Care Response to COVID-19. 2021 [cited 16 Feb 2022]; Available from: <https://www.gov.scot/binaries/content/documents/govscot/publications/progress-report/2021/11/scotlands-digital-health-care-response-covid-19-2021-update2/documents/scotlands-digital-health-care-response-covid-19-2021-update/scotlands-digital-health-care-response-covid-19-2021-update/govscot%3Adocument/scotlands-digital-health-care-response-covid-19-2021-update.pdf>.
17. Scottish Recovery Network. Meaningful connections: How peer support in Scotland adapted to a digital world during Covid-19. 2020.
18. NHS Health Scotland. The Scottish burden of disease study, 2016. 2018 [cited 16 Feb 2022]; Available from: <https://www.scotpho.org.uk/media/1733/sbod2016-overview-report-sept18.pdf>
19. Scottish Government. The Scottish Health Survey: 2019 edition - volume 1 - main report. 2020 [cited 16 Feb 2022]; Available from: <https://www.gov.scot/publications/scottish-health-survey-2019-volume-1-main-report/documents/>
20. Public Health Scotland - Data and Intelligence. GP Consultations / Practice Team Information (PTI) Statistics. 2013 [cited 16 Feb 2022]; Available from: <https://www.isdscotland.org/Health-Topics/General-Practice/GP-Consultations/>.
21. Public Health Scotland. General practice - disease prevalence data visualisation. 2020 [cited 16 Feb 2022]; Available from: <https://beta.isdscotland.org/find-publications-and-data/health-services/primary-care/general-practice-disease-prevalence-data-visualisation/>.
22. MIND. GP mental health training survey 2018 [cited 16 Feb 2022]; Available from: <https://www.mind.org.uk/media-a/4414/gp-mh-2018-survey-summary.pdf>
23. ISD Scotland. Medicines used in mental health. 2019 [cited 16 Feb 2022]; Available from: <https://www.isdscotland.org/Health-Topics/Prescribing-and-Medicines/Publications/2019-10-22/2019-10-22-PrescribingMentalHealth-Report.pdf>
24. SAMH. What’s it worth now? The social and economic costs of mental health problems in Scotland. 2011 [cited 16 Feb 2022]; Available from: <https://www.samh.org.uk/documents/Whatis%CC%81s%20it%20worth%20now.pdf>
25. Public Health Scotland. Rapid review of the impact of COVID-19 on mental health. 2020 [cited 16 Feb 2022]; Available from: <https://publichealthscotland.scot/media/3095/rapid-review-of-the-impact-of-covid-19-on-mental-health-july2020-english.pdf>

26. MIND. Coronavirus: the consequences for mental health. 2021 [cited 16 Feb 2022]; Available from: <https://www.mind.org.uk/media/8962/the-consequences-of-coronavirus-for-mental-health-final-report.pdf>
27. Papadatou-Pastou M, Goozee R, Payne E, Barrable A, Tzotzoli P. A review of web-based support systems for students in higher education. *International Journal of Mental Health Systems*. 2017;11(1):59.
28. National Data Guardian. 10 Data Security Standards. 2017 [cited 20/05/2022]; Available from: <https://www.digitalsocialcare.co.uk/data-security-protecting-my-information/national-policy/>.
29. OWASP. OWASP Top Ten. 2021 [cited; Available from: <https://owasp.org/www-project-top-ten/>.
30. NHS Digital. Internet First guidance. 2020 [cited 20/05/2022]; Available from: <https://digital.nhs.uk/services/internet-first/internet-first-guidance>
31. W3C. Web Content Accessibility Guidelines (WCAG) 2.1. 2018 [cited 11/05/2022]; Available from: <https://www.w3.org/TR/WCAG21/>
32. Togetherall. Accessibility 2020 [cited 11/05/2022]; Available from: <https://togetherall.com/en-gb/accessibility/>.
33. W3C Web Accessibility Initiative. Contacting Organizations about Inaccessible Websites. 2017 [cited 27/05/2022]; Available from: <https://www.w3.org/WAI/teach-advocate/contact-inaccessible-websites/>.
34. Gilbody S, Littlewood E, Hewitt C, Brierley G, Tharmanathan P, Araya R, *et al*. Computerised cognitive behaviour therapy (cCBT) as treatment for depression in primary care (REEACT trial): large scale pragmatic randomised controlled trial. *BMJ*. 2015;351:h5627. Epub 2015/11/13.
35. Fleming T, Bavin L, Lucassen M, Stasiak K, Hopkins S, Merry S. Beyond the Trial: Systematic Review of Real-World Uptake and Engagement With Digital Self-Help Interventions for Depression, Low Mood, or Anxiety. *J Med Internet Res*. 2018;20(6):e199. Epub 2018/06/08.
36. James Lind Alliance. Digital technology for mental health 2022 [cited 12/05/2022]; Available from: <https://www.jla.nihr.ac.uk/priority-setting-partnerships/digital-technology-for-mental-health/>.
37. Stewart C. Mental Health Awareness Week: School pupils join forces in mental health bid. 2021 [cited 15/05/2022]; Available from: <https://www.pressreader.com/uk/evening-times/20210515/281599538388322>.

Appendix 1 Research sub-questions

1. What health or well-being condition is the platform designed to address, and what is the unmet need in this area?
2. What are the features of the platform, how was it developed, how is it used and how is it regulated?
3. What does evidence indicate are the impacts of Togetherall on clinical and patient reported outcome measures, and wider societal benefits?
4. Are there any safety concerns for users of Togetherall and how are these addressed by the platform and/or can be managed by NHSScotland?
5. What does published evidence show is the economic impact of introducing Togetherall?
6. What processes, equipment and training are needed to ensure successful roll out of the Togetherall in NHSScotland?
7. Is there sufficient capacity within the implementing and hosting service to ensure successful deployment, management and governance of Togetherall at the required scale?
8. What are the views of health and care professionals on Togetherall?
9. What are the views of users of Togetherall on the system?
10. How accessible and user friendly is Togetherall for potential users?
11. Does the use of Togetherall have potential to impact on existing inequalities in society or to create new inequalities?
12. Does Togetherall comply with data security, protection and privacy legislation and policies?
13. Are there any other legal issues or ethical for NHSScotland associated with the use of Togetherall?

Appendix 2 Abbreviations and definitions

A&E: Accident and Emergency

API: Application Program Interfaces

AWS: Amazon Web Services

BWW: Big White Wall

CAMHS: Child and Adolescent Mental Health Services

CBT: cognitive behavioural therapy

CI: confidence interval

CRMP: Clinical Risk Management Plan

DHCFT: Derbyshire Healthcare NHS Foundation Trust

DMH: digital mental health

EEA: European Economic Area

EMAHSN: East Midlands Academic Health Science Network

EQ-5D-5L: EuroQOL 5-dimension quality of life questionnaire

ESRC: Economic and Social Research Council

FAQ: Frequently Asked Question

GAD-7: Generalised Anxiety Disorder Questionnaire-7 item

GDPR: General Data Protection Regulation

GHQ-12: Short General Health Questionnaire

GP: General Practitioner

HSCP: Health and Social Care Partnership

IAPT: Improving Access to Psychological Therapies

IQR: interquartile range

KPIs: Key Performance Indicators

LA: local authority

NPS: Net Promoter Score

NIHR: National Institute for Health and Care Research

ORCHA: Organisation for the Review of Care and Health Applications

PHQ-9: Patient Health Questionnaire-9 item

RAS-r: Recovery Assessment Scale

RCT: Randomised Controlled Trial

SAMH: Scottish Association for Mental Health

SD: standard deviation

SHTG: Scottish Health Technologies Group

TMHD: Talking Mental Health Derbyshire

W3C: World Wide Web Consortium

WCAG: Web Content Accessibility Guidelines

WEMWBS: Warwick-Edinburgh Mental Well-being Scale

Daily defined dose: the assumed average maintenance dose per day for a drug used for its main indication in adults.

Disability adjusted life years (DALY): a time-based measure that combines years of life lost because of premature mortality (YLLs) and years of life lost because of time lived in states of less than full health, or years of healthy life lost because of disability (YLDs). One DALY represents the loss of the equivalent of one year of full health.

Iteration bootstraps: a statistical procedure that resamples a single dataset to create many simulated samples.

Multiple imputation: a general approach to the problem of missing data. It aims to allow for the uncertainty about the missing data by creating several different plausible imputed data sets and appropriately combining results obtained from each of them.

Net Promoter Score (NPS): is a market research metric that typically takes the form of a single survey question asking respondents on a scale of 0 to 10 to rate the likelihood that they would recommend a company, product or a service to a friend or colleague.

Pragmatic randomised controlled trial: a trial designed to evaluate the effectiveness of interventions in real-life routine practice conditions

Presenteeism: the lost productivity that occurs when employees are not fully functioning in the workplace because of an illness

Appendix 3 Local authority feedback on Togetherall

Written feedback was received from officials from two Scottish local authorities who introduced Togetherall in 2020 and 2021 respectively. The recent adoption means that outcomes and user experience have yet to be formally evaluated and the feedback is based on the individual officials' insights into the operation of the platform. The feedback relates to several of the research questions posed in this report and is added here for information, but it should not be viewed as research evidence to address these questions.

The value of Togetherall

Togetherall is viewed as an additional layer of support in one local authority's staged approach to mental health intervention within their mental health action plan. Togetherall helps support those who prefer to use online assistance and the local authority has evidence of it protecting young people's safety in the context of suicide prevention. A young person in the local authority area posted a suicide plan online and Togetherall working in conjunction with child protection services and Police Scotland were able to locate the individual and intervene.³⁷

Similarly, another local authority recognises Togetherall as being one of a range of options which is important for them in having rural locations where face-to-face support cannot always be provided. However, there is an acknowledgement that online support is not suitable for everyone.

Economic impact of introducing Togetherall

There is no economic evaluation evidence available. One local authority noted the cost of introducing the platform as £0.60 per young person in their area. This is viewed by the authority as being financially attractive given the support, reporting facilities, ease of access and risk management the platform offers.

Funding for Togetherall has come from community health and social care budgets (community health and well-being funding, Health and Social Care Partnership (HSCP)).

Rollout of Togetherall

The platform has been effectively rolled out in both local authorities with Togetherall being praised for managing the process well. A key factor recognised by both local authorities in successfully embedding the platform has been communication with existing services to promote the platform. This has involved working with schools, parent groups, HSCP, the third sector and Police Scotland.

Evaluation of Togetherall

The recent introduction of Togetherall has meant that no clinical and patient reported outcome measures have been collected yet. Similarly, no formal feedback has been received from health and care staff or service users. One local authority notes that informal feedback from staff on Togetherall has been positive.

The Scottish Government has commissioned Social Value Lab to undertake an evaluation of Kooth which is a similar mental health support resource for young people. The evaluation also includes questions about Togetherall and will provide an insight into its operation.

Accessibility and user friendliness of Togetherall

The accessibility to the online platform was positively recognised by both local authorities with a recognition that this medium is not suitable for all and access may be limited by a lack of information technology and online facilities. The platform was recognised as having the potential to reduce inequalities through offering access in areas that cannot be reached by existing services and providing support for those who may not necessarily be comfortable seeking physical help through existing conventional services. It can also be used as interim support while someone is waiting for a clinic-based service.

Appendix 4 SHTG Digital Health and Care Technologies Assessment Framework (pilot version)

- This framework lists the generic questions that that can be considered when undertaking an HTA of a digital health and care technology. These are grouped under 13 domains and 41 topics.
- Most questions apply to any type of health and care technology but some are specific to digital technologies.
- Not all questions will be relevant for all digital technologies.
- The types of evidence, and particular study designs, required to respond to the questions will also vary by technology and the stage of development of the technology (eg, Prototyping, Optimisation, Implementation, surveillance).
- The NICE [Evidence Standards Framework for Digital Health Technologies](#) should be consulted to determine to which tier a technology belongs, and this can then help to guide the type of evidence required to address the questions. For example, for technologies within the highest tier, comparative evidence, with randomisation where possible, would be desirable to demonstrate effectiveness, but for a technology within a lower tier, user feedback may be sufficient.
- While SHTG will be responsible for and oversee the overall assessment, they may seek responses to some of the questions from other bodies in Scotland with expertise in specific areas of digital healthcare.

Domain	Topics	Questions
1. Health or well-being problem and the current care pathway	<ul style="list-style-type: none"> • Target condition • Target population • Current management of the condition 	<p>1a. What is the disease, health or well-being condition under consideration?</p> <p>1b. What is the target population in this assessment?</p> <p>1c. What are the known risk factors for the disease or condition?</p> <p>1d. What is the natural course of the disease or condition?</p> <p>1e. What are the symptoms and the burden of disease or condition for the individual?</p> <p>1f. What are the consequences of the disease or condition for society?</p> <p>1g. How is the disease or condition currently diagnosed and managed according to published guidelines and in practice?</p>
2. Description and technical characteristics of technology and current/intended use?	<ul style="list-style-type: none"> • Features of the technology • Regulatory status • Utilisation 	<p>2a. What is this technology and its claimed benefit in relation to the relevant comparator(s) for health and care system in Scotland?</p> <p>2b. Who manufactures the technology?</p> <p>2c. Is the following readily available: current technology owners, contact information, funding sources, promotion and sponsorship and any other possible conflicts of interest?</p> <p>2d. What is the phase of development and implementation of the technology and its comparator(s) within NHS Scotland?</p> <p>2e. Who administers the technology and the comparator(s) and in what context and level of care are they provided?</p> <p>2f. What equipment and supplies, premises and quality assurance are needed to use and/or maintain the technology and the comparator(s)?</p>

		<p>2g. For which indications has the technology received marketing authorisation/CE/CA marking?</p> <p>2h. Is technology a new, innovative mode of care, an add-on to, or modification of a standard or other new mode of care, or a replacement of a standard mode of care?</p> <p>2i. What kind of variations in use of the technology are there across countries/regions/settings?</p>
3. Effectiveness	<ul style="list-style-type: none"> • Reliable information content • Accurate and reliable measurements • Accurate and reliable transmission of data • Demonstrating effectiveness against user and system outcomes (where appropriate compared with current practice) 	<p>3a. If the technology provides health and care information, is this accurate, valid and up to date?</p> <p>3b. If the technology is designed to make measurements, does it do so accurately and reliably?</p> <p>3c. If the technology is design to transmit data, does it do so accurately and reliably?</p> <p>3d. What is impact of the technology on mortality/ treating or reducing symptoms/ preventing disease progression or recurrence?</p> <p>3e. What is the impact of the technology on preventative behaviour change/self management?</p> <p>3f. For diagnostic technologies, what is the accuracy (sens/spec/npv/ppv) of the test?</p> <p>3g. What is the impact of the technology in screening for/diagnosing/monitoring health condition?</p> <p>3h. What is the impact of the technology on the users' quality of life/ ability to undertake activities of daily living/work or attend education?</p> <p>3i. Does the technology provide benefits to the health and care system itself? If so, in what way?</p>
4. Safety	<ul style="list-style-type: none"> • Patient/user safety • Occupational safety • Safety risk management 	<p>4a. What safety concerns are there related to the technology itself and/or its use and how do these compare with current practice(s)?</p> <p>4b. Are any harms related to dosage or frequency of applying the technology?</p> <p>4c. How does the frequency or severity of harms change over time or in different settings?</p>

		<p>4d. For screening and diagnostic technologies, what are the consequences of false positive, false negative and incidental findings generated by using the technology from the viewpoint of patient safety?</p> <p>4e. Are the technology and comparator(s) associated with user-dependent harms?</p> <p>4f. What kind of occupational harms can occur when using the technology compared with current practice?</p> <p>4g. How can the safety risks for users/professionals (including technology-, user-, and patient-dependent aspects) be reduced?</p>
<p>5. Costs and economic evaluation</p>	<ul style="list-style-type: none"> • Resource utilisation • Measurement and estimation of outcomes • Examination of costs and outcomes • Characterising uncertainty 	<p>5a. What types and amounts of resources are used when delivering the assessed technology and its comparator(s)?</p> <p>5b. What are the measured and/or estimated costs of the assessed technology and its comparator(s)?</p> <p>5c. How does the technology modify the need for other technologies and use of resources?</p> <p>5d. What is(are) the measured and/or estimated outcome(s) (health, personal or system) of the assessed technology and its comparator(s)?</p> <p>5e. What are the estimated differences in costs and outcomes between the technology and its comparator(s)?</p> <p>5f. What are the uncertainties surrounding the costs and economic evaluation(s) of the technology and its comparator(s)?</p> <p>5g. What are the likely budget impacts of implementing the new technology?</p>
<p>6. Organisational aspects</p>	<ul style="list-style-type: none"> • Health delivery process • Investment, tools, training and information 	<p>6a. How will introducing the technology affect current work processes?</p> <p>6b. What material investments are needed to introduce/implement/use the technology?</p> <p>6c. Who decides which individuals are eligible for the technology and on what basis?</p> <p>6d. Is the necessary information technology infrastructure available to enable implementation and adoption?</p>

	required to use the technology	<p>6e. What skills, training, level of digital literacy and continual professional development (CPD) courses are required for using and recommending the technology in health and care practice?</p> <p>6f. Does the technology have credibility among professionals, champions and key stakeholders and support for its adoption?</p>
7. Patient and social aspects	<ul style="list-style-type: none"> • Health and care experience 	<p>7a. What are individuals' experiences of living with the condition being considered?</p> <p>7b. What expectations and wishes do individuals have with regard to the technology and what do they expect to gain from the technology?</p> <p>7c. What are individuals' experiences of using the technology under consideration?</p>
8. Accessibility and usability	<ul style="list-style-type: none"> • Diversity • Design • Standards • Communication 	<p>8a. How has the technology been designed to minimise barriers associated with particular hardware, software, data requirements and platform services?</p> <p>8b. How has the technology been designed to enable access, whatever the language/location, age, culture and ability of the user?</p> <p>8c. Is the product compatible with the appropriate usability guidelines? Eg</p> <ul style="list-style-type: none"> ○ WCAG 2.0/ WCAG 2.1 ○ Papunet Design Guide for Websites ○ EN 301 549 section 11-Software ○ Design guidelines for native application ○ Design guidelines for progressive web application <p>8d. What processes are there to collect and act on user feedback?</p>
9. Legal and ethical aspects	<ul style="list-style-type: none"> • Ownership and liability 	<p>9a. Is it clear who is responsible for any clinical advice offered by the technology?</p>

	<ul style="list-style-type: none"> • Benefit-harm balance • Autonomy • Fairness 	<p>9b. Are litigation risks to the healthcare practitioners and any impacts on professional registrations from using or recommending the technology clear?</p> <p>9c. Is it clear how individuals' insurance(s) (ie, professional indemnity, life, health, income) could be affected through use of the technology?</p> <p>9d. Could individuals have a false sense of security, for example if the technology is collecting real-time data and they are not being contacted by professionals?</p> <p>9e. Are there harms from individuals having access to the data without someone's assistance to help them interpret what it means?</p> <p>9f. Does the implementation or use of the technology affect the patient's capability and possibility to exercise autonomy?</p> <p>9g. Could the use of the technology serve to create new or maintain or worsen existing inequalities in society?</p>
<p>10. Technical assurance</p>	<ul style="list-style-type: none"> • How technically reliable and stable is the technology and comparator • How well are continuity and updates of the technology managed • Ongoing monitoring 	<p>10a. Is there sufficient capacity within the implementing and hosting service to ensure successful deployment, management and governance of product/service at the required scale, including:</p> <ul style="list-style-type: none"> ○ Appropriate technical infrastructure eg, server size and location ○ Programme and project management ○ Technology expertise and support ○ Administrative support ○ Clinical support/input ○ Ability to provide ongoing support to sustain service <p>10b. Is there evidence that platform and operating system updates and patches, service continuity, backup and recovery mechanisms are in place and well managed?</p> <p>10c. Is there effective communication to users about service changes or interruptions?</p> <p>10d. Is the technology resilient to erroneous data inputs, errors of precision, hardware problems, inappropriate use of devices, changes in other applications and other interruptions?</p>

		<p>10e. How often must devices or software versions related to the technology be renewed?</p> <p>10f. What plans are in place for post-market surveillance of the technology?</p>
<p>11. Data security, protection and privacy</p>	<ul style="list-style-type: none"> • Gathering of data • Privacy policy • Holding of data • Informed consent • Data security 	<p>11a. Does the technology comply with UK data protection legislation with users' information being collected, stored and processed in a safe, fair and lawful way [Data Protection Act 2018 (legislation.gov.uk)]?</p> <p>11b. How does the technology meet standards of best practice in security?</p> <p>For help in addressing these questions, refer to NHSx Digital Technology Assessment Criteria for Health and Social Care (DTAC) C2 and C3</p>
<p>12. Interoperability</p>	<ul style="list-style-type: none"> • Exporting data • Systems interfaces • Integrated systems 	<p>12a. Can the data gathered or used by the technology be imported/exported in a commonly used or standard format?</p> <p>12b. Does the product use data from other systems via interfaces and if so, can the different data sets be separated?</p> <p>12c. Does the technology have processes to support the creation and maintenance of accurate healthcare records that can be integrated with multiple information systems using the relevant patient/ provider identifiers and standard terminologies?</p> <p>12d. Are hardware and software related to the technology designed to be as compatible with those of related technologies and systems?</p>
<p>13. Environmental and sustainability aspects</p>	<ul style="list-style-type: none"> • Environmental risks • Sustainability 	<p>13a. What risks and/or benefits to the general public and the environment does use of this technology present?</p> <p>13b. How can risks for the general public or the environment (including technology-, user-, and patient-dependent aspects) from using the technology be reduced?</p> <p>13c. What steps have developers of the technology taken to ensure sustainability in the production and use of the technology?</p>